Modified PTO/SB/33 (10-05)

PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number Q89222	
Mail Stop AF Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number 10/552,825	Filed October 7, 2005
	First Named Inventor Kei TERADA	
	Art Unit 2837	Examiner Renata D. MCCLOUD

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal

The review is requested for the reasons(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

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June 10, 2009
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
Kei TERADA, et al.

Docket No: Q89222

Appln. No.: 10/552,825

Group Art Unit: 2837

Confirmation No.: 3856

Examiner: Renata D. MCCLOUD

Filed: October 7, 2005

For: SERVO CONTROLLER

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Pre-Appeal Brief Conference Pilot Program, and further to the Examiner's Final Office Action dated December 10, 2008 and Advisory Action dated April 9, 2009, Appellants file this Pre-Appeal Brief Request for Review. This Request is also accompanied by the filing of a Notice of Appeal.

Claims 12-15 and 18-26 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Yutkowitz *et al.* (U.S. Patent No. 5,710,498, "Yutkowitz"). For *at least* the following reasons, Appellants respectfully traverse the rejection.

Appellants submit that claim 12 is not anticipated by Yutkowitz. For example, claim 12 relates to a servo controller. The servo controller comprises, *inter alia*, a position feedback correction unit for outputting a corrected position feedback signal by adding a between-axes positional deviation to a self-axis position to which a gain is applied. The between-axes positional deviation is the difference between a self-axis position and another-axis position. Moreover, the between-axes positional deviation is filtered and gained.

It was submitted in the Amendment filed June 19, 2008 that although Yutkowitz's position error and velocity command generator 23 determines differences between commanded positions $PCMD_I$ and measured positions $PACT_I$ (Yutkowitz, col. 9, lines 52-56), neither the commanded positions $PCMD_I$ nor the measured positions $PACT_I$ disclose or suggest the claimed between-axes positional deviation. Moreover, it was submitted that there is no disclosure in Yutkowitz of calculating, with respect to the subject **controlled element**, a difference between a self-axis position and **another-axis position**. Only the position (desired, actual, or compensated) of the controlled element itself is taken into account. A position of **another-axis** when outputting a velocity command from the gain multiplier 14 (which takes in as input the position loop error output from the junction 12) is never accounted for in Yutkowitz (previous Amendment, pages 10-11).

In response, in the Final Office Action, the Examiner again relies on the same portions of Yutkowitz as cited previously for allegedly disclosing the claimed position feedback correction unit (e.g., col. 6, lines 12-28 and 36-68, and col. 9, lines 26-56). The only new assertion made in response to the above arguments is

that "[t]his is with respect to the controlled element include movable machine members (abstract)" (Office Action, page 6, lines 9-16). That is, the Examiner appears to be alleging that Yutkowitz discloses outputting a corrected position feedback signal with respect to multiple movable machine members (in an effort to disclose the claimed "between-axes positional deviation" which is the difference between a self-axis position and another-axis position). In the previous Response filed March 10, 2009, Appellants respectfully disagreed.

Appellants submitted that the Examiner's reliance on Yutkowitz's Abstract is misplaced, and the teachings of the Abstract are being taken out of context. Although Yutkowitz discloses in its Abstract that "[c]ompensation for friction affecting motion of moveable machine members is effected in servo control of the member actuators", in the 'Summary of the Invention' section in col. 2, Yutkowitz further discloses that "[a]n actuator is controlled to move a machine member according to position commands defining positions of the member" (col. 2, lines 45-47). That is, the control in Yutkowitz is based on the positions of only the subject moveable member, and not another member (presumably on another axis as alleged by the Examiner).

To further highlight this distinction, Appellants produced figures A and B based on Yutkowitz's disclosure, and figure C based on a non-limiting embodiment of claim 12 (see page 5 of previous Response, incorporated herein by reference). Figure A is a summarized version of Yutkowitz's FIG. 3b, in simplified block form. Figure B shows a more detailed version of figure A, illustrating Yutkowitz's technique of position control. Figure C, which illustrates an exemplary embodiment of the invention set forth in claim 12, shows the distinguishing features of claim 12 when compared to figures A and B which illustrate Yutkowitz's technique.

As shown in figure B, each of the axes (e.g., X/Y/Z) is controlled independent of the other axes in Yutkowitz (also see Yutkowitz: col. 4, lines 53-67, and col. 9, lines 52-62). Further, the aforementioned position error and velocity command generator 23 includes the following components from Yutkowitz's FIG. 2a - the summing junction 230, summing junction 12, block 14, and summing junction 15. As such, Yutkowitz's position correction technique takes an effect of friction into account using a positional deviation between a position command of a self-axis and a real position of the self-axis (e.g., Yutkowitz, col. 9, lines 34-46).

Moreover, as shown in figure C, a position of another axis (e.g., the X2 axis) in addition to the subject axis (e.g., the X1 axis) is taken into account to perform position correction in the claimed invention. Yutkowitz does not anticipate this feature. In other words, Yutkowitz does not disclose the claimed position feedback correction unit for outputting a corrected position feedback signal by adding a between-axes positional deviation to a self-axis position to which a gain is applied, wherein the between-axes positional deviation is the difference between a self-axis position and another-axis position. Consequently, Yutkowitz cannot anticipate claim 12.

Further, Appellants note that distinctions between the features recited in claims 13-15 and Yutkowitz were pointed out in the June 19th Amendment (incorporated herein by reference) that **were not addressed** in the Final Office Action or the Advisory Action. Appellants respectfully remind the panel that all of the

Appellants' arguments should have been addressed by the Examiner, as stated in MPEP § 707.07(f). For the panel's convenience, Appellants reproduce below the previously pointed out distinctions.

For example, claim 13 recites that in the position feedback correction unit, the gain applied to the between-axes positional deviation is set at a negative value during operational stops, and is set at a positive value during operational runs. The Examiner cites col. 11, line 65 to col. 12, line 6 of Yutkowitz to disclose this feature. Appellants respectfully disagree.

In the cited portion, Yutkowitz discloses that when the current state is in a negative direction, "no command state is set if the current commanded velocity is zero..." (*see* also: col. 5, lines 33-35). The no command state corresponds to no compensation being applied to the position values, i.e., **no gain** is applied to the desired position command PCMD, let alone a **negative valued** gain as required by claim 13.

Claims 14 and 15 recite that the servo controller further comprises a velocity feedback correction unit for outputting a corrected velocity feedback signal by adding a between-axes velocity deviation, filtered and gained, that is the **difference** between the self-axis velocity and **another-axis velocity**, to a self-axis velocity to which a gain is applied. The Examiner contends that col. 9, lines 57-62 of Yutkowitz disclose this feature. Appellants respectfully disagree.

For example, in Yutkowitz, it is generally disclosed that the velocity loop control 37 determines differences between commanded velocities and actual velocities. The commanded velocities do not disclose or suggest the claimed between-axes velocity deviation, since another-axis velocity is never taken into account when calculating an estimated velocity in Yutkowitz (e.g., see col. 6, lines 36-47, "...values of estimated velocity according to a filter function operating on position commands and velocity feedforward commands may be periodically determined according to...(equation 1)"). Therefore, Yutkowitz cannot disclose the claimed velocity feedback correction unit set forth in claims 14 and 15.

Appellants further maintain that claim 18 is not anticipated by Yutkowitz. For example, claim 18 relates to a servo controller. The servo controller comprises, *inter alia*, (1) a reference model control unit for calculating, based on a position command, a model position and a model acceleration for simulating an ideal movement for a machine, (2) a position control unit for performing, according to the difference between the model position and a self-axis position, positional control to output a velocity command, and (3) a model torque correction unit for **correcting**, according to the self-axis position and **another-axis position, the model acceleration** to calculate a model torque.

It was pointed out in the June 19th Amendment that the Office Action does not address *at least* features (1) and (2) of claim 18 noted above. Instead, the features of claim 12, which are not recited in claim 18, have been addressed (again) in the Office Action dated March 19, 2008. In response, the Examiner contends that "although Yutkowitz does not use the same claim terminology, the claim limitations were addressed" (Office Action, page 6, lines 7-8). First, Appellants respectfully disagree with this assertion since the rejection of claim 18 has been changed from the March 19th Office Action to the Final Office Action (e.g., compare page 3, first paragraph, lines 1-5 of last Office Action dated March 19, 2008 to page 3, first

paragraph, lines 1-5 of current Office Action – the claim 18 rejection in the current Office Action has been revised to address feature (1)). Moreover, the Examiner has still not properly addressed the position control unit of claim 18. Rather, the functionality of the position control unit recited in the claim 18 rejection is simply copied from the claim 12 rejection. As pointed out above, however, these features are not recited in claim 18. The distinct recitations related to the position control unit of claim 18 are not addressed.

Accordingly, Appellants submit that the Final Office action is incomplete, and request the panel to reconsider and address all the features of every claim presented for examination (this request was made previously to the Examiner also, see June 19th Amendment, page 13, first paragraph).

In the Final Office Action, it appears that the Examiner is asserting with respect to the claimed model torque correction unit which **corrects**, according to the self-axis position and **another-axis position**, the model acceleration to calculate a model torque, that Yutkowitz discloses this feature because it discloses multiple movable machine members (e.g., Office Action, page 6, lines 3-7). As pointed out above with respect to claim 12, however, any control/correction in Yutkowitz is based on the positions of only a single moveable member, and not another member as set forth in col. 2, lines 31-52 of Yutkowitz.

Claim 25 is also not anticipated by Yutkowitz. For example, claim 25 relates to a servo controller. The servo controller comprises (1) a reference model control unit for calculating, based on a position command, a model position and a model acceleration for simulating an ideal movement for a machine, (2) a position feedback correction unit for outputting a corrected position feedback signal based on a self-axis position and **another-axis position**, (3) a position control unit for performing, according to a **difference** between the model position and **the corrected position feedback signal** outputted from the position feedback correction unit, positional control to output a velocity command, (4) a velocity feedback correction unit for outputting a corrected velocity feedback signal based on a self-axis velocity and **another axis-velocity**, and (5) a model torque correction unit for **correcting**, according to another-axis model acceleration, the self-axis position, **and the other-axis position**, the model acceleration, to calculate a model torque. Since feature (5) is similar to the one discussed above with respect to claim 18, Appellants respectfully submit that claim 25 is patentable for *at least* reasons given above with respect to claim 18.

In the Advisory Action, in response to the above-noted arguments, the Examiner contends that "Yutkowitz et al teach controlling two or more moveable members for simultaneous coordinated motion. The axes are orthogonal. **They teach positional feedback correction by taking a position error (fig. 2a:12, PE) which is the difference between a first position and another position, and adding the error to a first position (col. 4:47-67, 5:32-46,)**" (Advisory Action, page 2, emphasis added). This is inaccurate, however, since Yutkowitz discloses that its actuator is controlled to move a machine member according to position commands defining positions of the member (col. 2, lines 45-47). In other words, only the position (desired, actual, or compensated) of the controlled member itself is taken into account in Yutkowitz, and not a position of another axis, as claimed. To highlight this difference, Appellants reproduce below annotated versions of Yutkowitz's FIG. 2a and Appellants' FIG. 10.

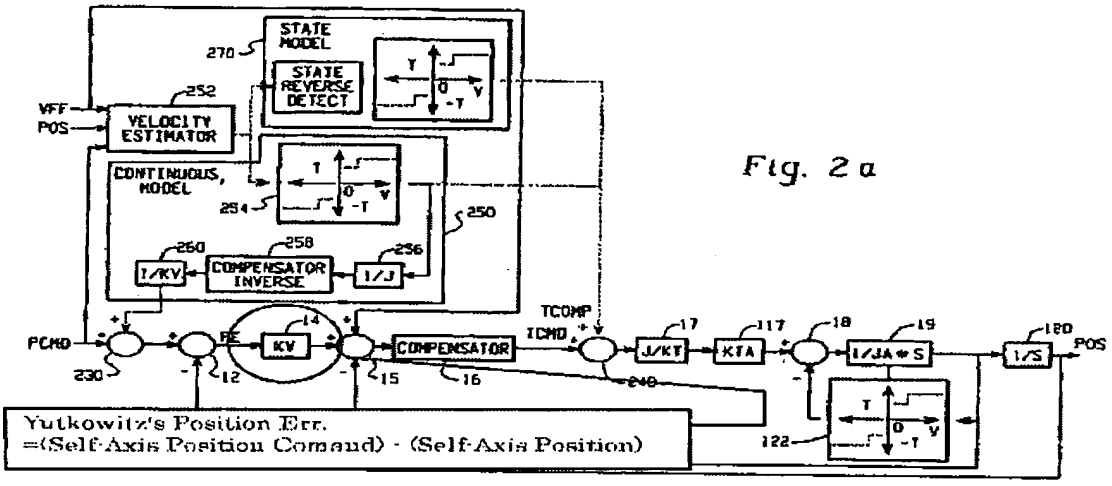

Fig. 2a

Figure 2a of Yutkowitz

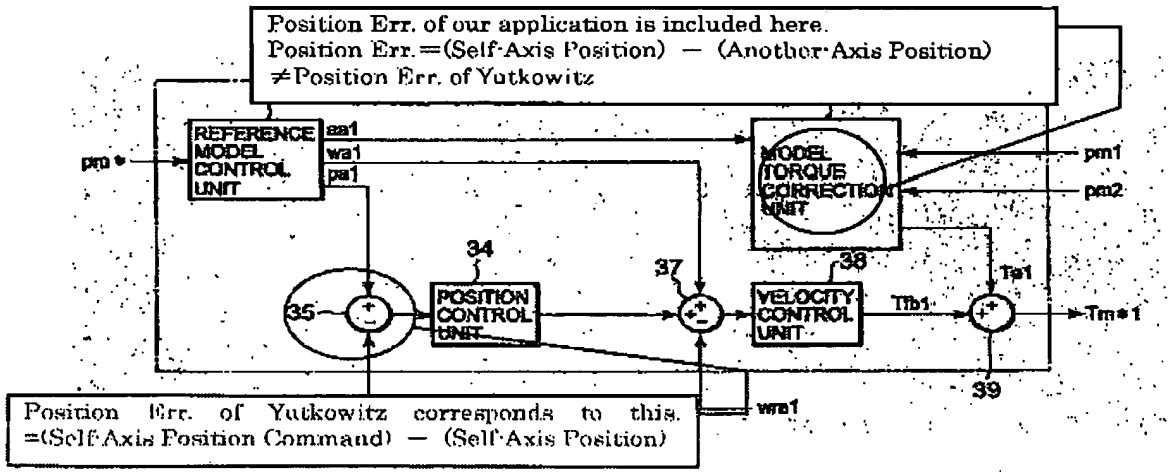

FIG. 10 of Appellants' drawings (e.g., see claim 18)

As shown above, the controlled member's position is the only position taken into consideration in Yutkowitz when determining a position error. No position of another axis (e.g., another member on another axis) is taken into consideration, as required in some variation by claims 12, 18, and 25. Accordingly, Appellants submit that the claims are not anticipated by Yutkowitz.

Respectfully submitted.

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